

Exhibit A

GenCore version 6.2.1
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OM protein - protein search, using sw model

Run on: October 20, 2007, 03:44:28 ; Search time 100 Seconds
(without alignments)
871.101 Million cell updates/sec

Title: US-10-576-982-2
Perfect score: 438
Sequence: 1 SYISNASGSEAAKAWIAGR.....ASRYGSWIAQQFWQANGWY 81

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 3281787 seqs, 1072124677 residues

RESULT 7
Q8GIZ8_LACAC
ID Q8GIZ8_LACAC PRELIMINARY; PRT; 301 AA.
AC Q8GIZ8;
DI 01-MAR-2003, integrated into UniProtKB/TrEMBL.
DT 01-MAR-2003, sequence version 1.
DI 07-FEB-2006, entry version 6.
DE Aggregation promoting factor.
GN Name=apfA;
OS Lactobacillus acidophilus.
OC Bacteria; Firmicutes; Lactobacillales; Lactobacillaceae;
OC Lactobacillus.
OX NCBI TaxID=1579;
RN [1]
RP NUCLEOTIDE SEQUENCE.
RC STRAIN=TMW1.988;
RA Ehrmann M.A.;
RL Submitted (MAR-2002) to the EMBL/GenBank/DDBJ databases.
CC
CC Copyrighted by the UniProt Consortium, see <http://www.uniprot.org/terms>
CC Distributed under the Creative Commons Attribution-NoDerivs License
CC
DR EMBL; AJ438291; CAD27353.1; -; Genomic_DNA.
SQ SEQUENCE 301 AA; 32460 MW; 90E913F001280BCF CRC64;

Query Match 87.9%; Score 385; DB 2; Length 301;
Best Local Similarity 86.4%; Pred. No. 2.1e-31;
Matches 70; Conservative 4; Mismatches 7; Indels 0; Gaps 0;

Qy 1 SYISNASGSEAAKAWIAGRGGNNATNGQYIGKYQLAASYLGGDYSPANQERVADQY 60
Db 221 SYTSNVSGSEAAKAWIAGRGGSYSARNGQYIGKYQLSASYLGGDYSAANQQERVADNY 280

Qy 61 VASRYGSWIAQQFWQANGWY 81
Db 281 VKSRYGSWTGAQKFWQTINGWY 301

ClustalW2 Results

Results of search

| | |
|---------------------|--|
| Number of sequences | 9 |
| Alignment score | 16900 |
| Sequence format | Pearson |
| Sequence type | aa |
| JalView | Start Jalview |
| Output file | clustalw2-20090112-17224691.output |
| Alignment file | clustalw2-20090112-17224691.aln |
| Guide tree file | clustalw2-20090112-17224691.dnd |
| Your input file | clustalw2-20090112-17224691.input |

[SUBMIT ANOTHER JOB](#)

To save a result file right-click the file link in the above table and choose "Save Target As".
 If you cannot see the JalView button, reload the page and check your browser settings to enable Java Applets.

Scores Table

Sort by [Sequence Number](#) [View Output File](#)

| | SeqA Name | Len(aa) | SeqB Name | Len(aa) | Score |
|---|----------------|---------|------------------|---------|-------|
| 1 | SEQ_ID_NO2 | 81 | 2 NCC553_apf1 | 81 | 86 |
| 1 | SEQ_ID_NO2 | 81 | 3 DSM20553_apf1 | 81 | 86 |
| 1 | SEQ_ID_NO2 | 81 | 4 ATCC11506_apf1 | 81 | 86 |
| 1 | SEQ_ID_NO2 | 81 | 5 ATCC33200_apf1 | 81 | 83 |
| 1 | SEQ_ID_NO2 | 81 | 6 ATCC19992_apf1 | 81 | 86 |
| 1 | SEQ_ID_NO2 | 81 | 7 VPI11759_apf1 | 81 | 81 |
| 1 | SEQ_ID_NO2 | 81 | 8 ATCC332_apf1 | 81 | 86 |
| 1 | SEQ_ID_NO2 | 81 | 9 Ehrmann | 81 | 86 |
| 2 | NCC553_apf1 | 81 | 3 DSM20553_apf1 | 81 | 100 |
| 2 | NCC553_apf1 | 81 | 4 ATCC11506_apf1 | 81 | 100 |
| 2 | NCC553_apf1 | 81 | 5 ATCC33200_apf1 | 81 | 97 |
| 2 | NCC553_apf1 | 81 | 6 ATCC19992_apf1 | 81 | 97 |
| 2 | NCC553_apf1 | 81 | 7 VPI11759_apf1 | 81 | 92 |
| 2 | NCC553_apf1 | 81 | 8 ATCC332_apf1 | 81 | 98 |
| 2 | NCC553_apf1 | 81 | 9 Ehrmann | 81 | 95 |
| 3 | DSM20553_apf1 | 81 | 4 ATCC11506_apf1 | 81 | 100 |
| 3 | DSM20553_apf1 | 81 | 5 ATCC33200_apf1 | 81 | 97 |
| 3 | DSM20553_apf1 | 81 | 6 ATCC19992_apf1 | 81 | 97 |
| 3 | DSM20553_apf1 | 81 | 7 VPI11759_apf1 | 81 | 92 |
| 3 | DSM20553_apf1 | 81 | 8 ATCC332_apf1 | 81 | 98 |
| 3 | DSM20553_apf1 | 81 | 9 Ehrmann | 81 | 95 |
| 3 | DSM20553_apf1 | 81 | 5 ATCC33200_apf1 | 81 | 97 |
| 4 | ATCC11506_apf1 | 81 | 6 ATCC19992_apf1 | 81 | 97 |
| 4 | ATCC11506_apf1 | 81 | 7 VPI11759_apf1 | 81 | 92 |
| 4 | ATCC11506_apf1 | 81 | 8 ATCC332_apf1 | 81 | 98 |
| 4 | ATCC11506_apf1 | 81 | 9 Ehrmann | 81 | 95 |
| 4 | ATCC11506_apf1 | 81 | 6 ATCC19992_apf1 | 81 | 95 |
| 5 | ATCC33200_apf1 | 81 | 7 VPI11759_apf1 | 81 | 90 |
| 5 | ATCC33200_apf1 | 81 | 8 ATCC332_apf1 | 81 | 96 |
| 5 | ATCC33200_apf1 | 81 | 9 Ehrmann | 81 | 92 |
| 6 | ATCC19992_apf1 | 81 | 7 VPI11759_apf1 | 81 | 93 |
| 6 | ATCC19992_apf1 | 81 | 8 ATCC332_apf1 | 81 | 96 |
| 6 | ATCC19992_apf1 | 81 | 9 Ehrmann | 81 | 93 |

Sequence Comparison
 results of Ventura apf1
 Sequences with
 SEQID NO:2

| | | | | | | |
|---|---------------|----|---|--------------|----|----|
| 7 | VPI11759_apf1 | 81 | 8 | ATCC332_apf1 | 81 | 91 |
| 7 | VPI11759_apf1 | 81 | 9 | Ehrmann | 81 | 88 |
| 8 | ATCC332_apf1 | 81 | 9 | Ehrmann | 81 | 96 |

PLEASE NOTE: Some scores may be missing from the above table if the alignment was done using multiple CPU mode. Please check the output.

Sort by **Sequence Number ▾** View Output File

Alignment

Show Colors | View Alignment File

CLUSTAL 2.0.10 multiple sequence alignment

| | | |
|----------------|---|----|
| DSM20553_apf1 | SYTSNVSGSEAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAAQQERVADNY | 60 |
| ATCC11506_apf1 | SYTSNVSGSEAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAAQQERVADNY | 60 |
| NCC553_apf1 | SYTSNVSGSEAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAAQQERVADNY | 60 |
| ATCC33200_apf1 | SYTSNVSSSEAAKAWIAGRESGGSYSARNGQYIGKLQLSASYLGGDYSAAQQERVADNY | 60 |
| ATCC332_apf1 | SYTSNVSGSEAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAAQQERVADNY | 60 |
| ATCC19992_apf1 | SYTSNASGSEAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAAQQERVADNY | 60 |
| VPI11759_apf1 | SYTSNASGSEAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAAQQERVADNY | 60 |
| Ehrmann | SYTSNVSGSEAAKAWIAGRESGGSYSARNGQYIGKYQLSASYLGGDYSAAQQERVADNY | 60 |
| SEQ_ID_NO2 | SYTSNASGSEAAKAWIAGRESGGNNATNGQYIGKYQLAASYLGGDYSQANQERVADQY | 60 |
| | ***** * *****: * * *****: * :*****: * :*****: * | |

| | |
|----------------|----------------------------|
| DSM20553_apf1 | VKSRYGSWSNAQSFWQANGWY 81 |
| ATCC11506_apf1 | VKSRYGSWSNAQSFWQANGWY 81 |
| NCC553_apf1 | VKSRYGSWSNAQSFWQANGWY 81 |
| ATCC33200_apf1 | VKSRYGSWSNAQSFWQANGWY 81 |
| ATCC332_apf1 | VKSRYGSWSNAQKFQWQANGWY 81 |
| ATCC19992_apf1 | VKSRYGSWSNAQSFWQSNANGWY 81 |
| VPI11759_apf1 | VKSRYGSWSNAQSFWQCKRLV 81 |
| Ehrmann | VKSRYGSWTGAQKFQWTNGWY 81 |
| SEQ_ID_NO2 | VASRYGSWTAAQQFWQANGWY 81 |

PLEASE NOTE: Showing colors on large alignments is slow

Show Colors | View Alignment File

Guide Tree

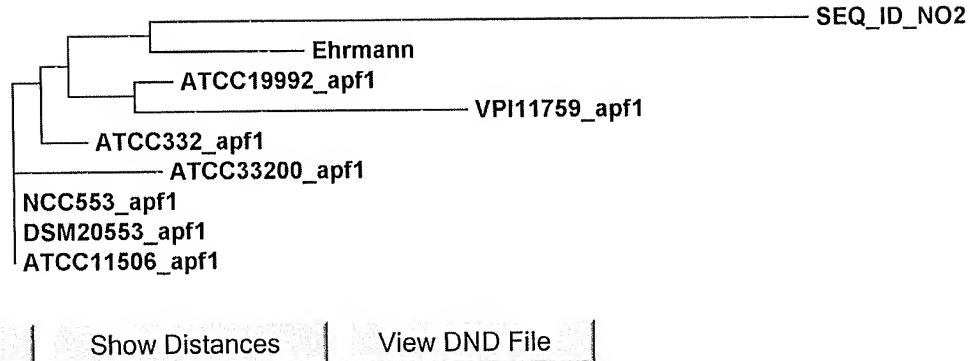
Show as Cladogram Tree | Show Distances | View DND File

```
(  
(  
(  
(  
(  
(  
SEQ_ID_NO2:0.11023,  
Ehrmann:0.02557)  
:0.01358,  
(  
ATCC19992_apf1:0.00  
VPI11759_apf1:0.055  
:0.01111)  
:0.00463
```

```
ATCC332_apf1:0.00772)

:0.00463,
ATCC33200_apf1:0.02469)
:0.00000,
NCC553_apf1:0.00000)
:0.00000,
DSM20553_apf1:0.00000,
ATCC11506_apf1:0.00000);
```

Phylogram



Right-click on the above tree to see display options.

Problems printing? Read how to print a Phylogram or Cladogram.

ClustalW2 Results

Results of search

| | |
|---------------------|---|
| Number of sequences | 9 |
| Alignment score | 17356 |
| Sequence format | Pearson |
| Sequence type | aa |
| JalView | Start Jalview |
| Output file | clustalw2-20090112-17234977.output |
| Alignment file | clustalw2-20090112-17234977.aln |
| Guide tree file | clustalw2-20090112-17234977.dnd |
| Your input file | clustalw2-20090112-17234977.input |

[SUBMIT ANOTHER JOB](#)

To save a result file right-click the file link in the above table and choose "Save Target As".
 If you cannot see the JalView button, reload the page and check your browser settings to enable Java Applets.

Scores Table

| Sort by | | Sequence Number | View Output File | | |
|---------|----------------|-----------------|------------------|----------------|---------|
| SeqA | Name | Len(aa) | SeqB | Name | Len(aa) |
| ===== | ===== | ===== | ===== | ===== | ===== |
| 1 | SEQ_ID_NO2 | 81 | 2 | ATCC11506_apf2 | 81 |
| 1 | SEQ_ID_NO2 | 81 | 3 | NCC553_apf2 | 81 |
| 1 | SEQ_ID_NO2 | 81 | 4 | ATCC332_apf2 | 81 |
| 1 | SEQ_ID_NO2 | 81 | 5 | ATCC33200_apf2 | 81 |
| 1 | SEQ_ID_NO2 | 81 | 6 | DSM20553_apf2 | 81 |
| 1 | SEQ_ID_NO2 | 81 | 7 | ATCC19992_apf2 | 81 |
| 1 | SEQ_ID_NO2 | 81 | 8 | VPI11759_apf2 | 81 |
| 1 | SEQ_ID_NO2 | 81 | 9 | Ehrmann | 81 |
| 2 | ATCC11506_apf2 | 81 | 3 | NCC553_apf2 | 81 |
| 2 | ATCC11506_apf2 | 81 | 4 | ATCC332_apf2 | 81 |
| 2 | ATCC11506_apf2 | 81 | 5 | ATCC33200_apf2 | 81 |
| 2 | ATCC11506_apf2 | 81 | 6 | DSM20553_apf2 | 81 |
| 2 | ATCC11506_apf2 | 81 | 7 | ATCC19992_apf2 | 81 |
| 2 | ATCC11506_apf2 | 81 | 8 | VPI11759_apf2 | 81 |
| 2 | ATCC11506_apf2 | 81 | 9 | Ehrmann | 81 |
| 3 | NCC553_apf2 | 81 | 4 | ATCC332_apf2 | 81 |
| 3 | NCC553_apf2 | 81 | 5 | ATCC33200_apf2 | 81 |
| 3 | NCC553_apf2 | 81 | 6 | DSM20553_apf2 | 81 |
| 3 | NCC553_apf2 | 81 | 7 | ATCC19992_apf2 | 81 |
| 3 | NCC553_apf2 | 81 | 8 | VPI11759_apf2 | 81 |
| 3 | NCC553_apf2 | 81 | 9 | Ehrmann | 81 |
| 4 | ATCC332_apf2 | 81 | 5 | ATCC33200_apf2 | 81 |
| 4 | ATCC332_apf2 | 81 | 6 | DSM20553_apf2 | 81 |
| 4 | ATCC332_apf2 | 81 | 7 | ATCC19992_apf2 | 81 |
| 4 | ATCC332_apf2 | 81 | 8 | VPI11759_apf2 | 81 |
| 4 | ATCC332_apf2 | 81 | 9 | Ehrmann | 81 |
| 5 | ATCC33200_apf2 | 81 | 6 | DSM20553_apf2 | 81 |
| 5 | ATCC33200_apf2 | 81 | 7 | ATCC19992_apf2 | 81 |
| 5 | ATCC33200_apf2 | 81 | 8 | VPI11759_apf2 | 81 |
| 5 | ATCC33200_apf2 | 81 | 9 | Ehrmann | 81 |
| 6 | DSM20553_apf2 | 81 | 7 | ATCC19992_apf2 | 81 |
| 6 | DSM20553_apf2 | 81 | 8 | VPI11759_apf2 | 81 |
| 6 | DSM20553_apf2 | 81 | 9 | Ehrmann | 81 |

Sequence Comparison
 results of Ventiera apf2
 Sequences with
 Seq ID NO:2 .

| | | | | | | |
|---|----------------|----|---|---------------|----|-----|
| 7 | ATCC19992_apf2 | 81 | 8 | VPI11759_apf2 | 81 | 98 |
| 7 | ATCC19992_apf2 | 81 | 9 | Ehrmann | 81 | 98 |
| 8 | VPI11759_apf2 | 81 | 9 | Ehrmann | 81 | 100 |

PLEASE NOTE: Some scores may be missing from the above table if the alignment was done using multiple CPU mode. Please check the output.

Sort by **Sequence Number** ▾ View Output File

Alignment

Show Colors | View Alignment File

CLUSTAL 2.0.10 multiple sequence alignment

| | | |
|----------------|-----------------------|----|
| NCC553_apf2 | VKSRYGSWTGAQKFQWTNGWY | 80 |
| DSM20553_apf2 | VKSRYGSWTGAQKFQWTNGWY | 81 |
| VPI11759_apf2 | VKSRYGSWTGAQKFQWTNGWY | 81 |
| Ehrmann | VKSRYGSWTGAQKFQWTNGWY | 81 |
| ATCC11506_apf2 | VKSRYGSWTGAQKFQWTNGWY | 81 |
| ATCC332_apf2 | VKSRYGSWTGAQKFQWTNGWY | 81 |
| ATCC19992_apf2 | VKSRYGSWTGAQKFQWTNGWY | 81 |
| ATCC33200_apf2 | VKSRYGSWTGAQKFQWTNGWY | 81 |
| SEQ_ID_NO2 | VASRYGSWTAAQQFWQANGWY | 81 |

PLEASE NOTE: Showing colors on large alignments is slow.

Show Colors | View Alignment File

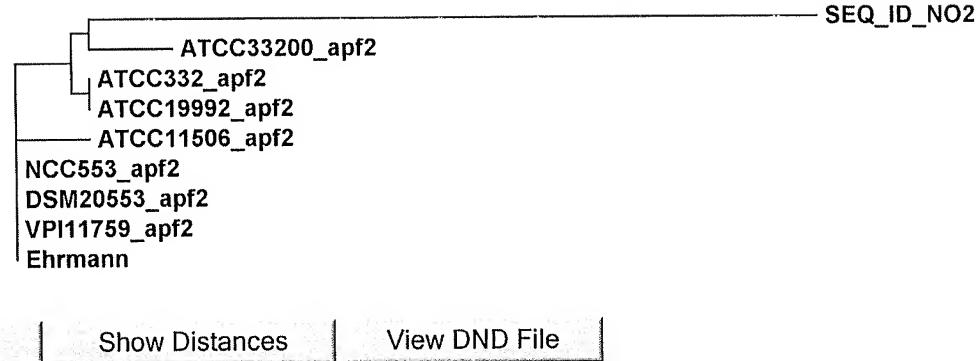
Guide Tree

Show as Cladogram Tree | Show Distances | View DND File

```
(  
(  
(  
(  
SEQ_ID_NO2:0.12179,  
ATCC33200_apf2:0.01401)  
:0.00317,  
(  
ATCC332_apf2:0.00000,  
ATCC19992_apf2:0.00000)  
:0.00300)  
:0.00929,  
ATCC11506_apf2:0.01232)  
:0.00000.
```

```
(  
(  
NCC553_apf2:0.00000,  
DSM20553_apf2:0.00000  
:0.00000,  
VPI11759_apf2:0.00000  
:0.00000,  
Ehrmann:0.00000);
```

Phylogram



Right-click on the above tree to see display options.

Problems printing? Read [how to print a Phylogram or Cladogram](#).

Sequence comparisons between Ventura *APF1* and Ehrmann sequences and SEQ ID NO:2 (Jalview of ClustalW2 results)

ATCC19924-81 SYTSNAGSEAAKAWIAGRESGGSYSARNDYIGKYLSSASYLGGDYSANDERVADNYVKSRYGSMSNSADSFWOSNGWY
 UPM17591-81 SYTSNAGSEAAKAWIAGRESGGSYSARNDYIGKYLSSASYLGGDYSANDERVADNYVKSRYGSMSNSADSFWOSNGWY
 NCC5531-81 SYTSNAGSEAAKAWIAGRESGGSYSARNDYIGKYLSSASYLGGDYSANDERVADNYVKSRYGSMSNSADSFWOSNGWY
 DSM205531-81 SYTSNAGSEAAKAWIAGRESGGSYSARNDYIGKYLSSASYLGGDYSANDERVADNYVKSRYGSMSNSADSFWOSNGWY
 ATCC11506-81 SYTSNAGSEAAKAWIAGRESGGSYSARNDYIGKYLSSASYLGGDYSANDERVADNYVKSRYGSMSNSADSFWOSNGWY
 ATCC332004-81 SYTSNAGSEAAKAWIAGRESGGSYSARNDYIGKYLSSASYLGGDYSANDERVADNYVKSRYGSMSNSADSFWOSNGWY
 ATCC3324-81 SYTSNAGSEAAKAWIAGRESGGSYSARNDYIGKYLSSASYLGGDYSANDERVADNYVKSRYGSMSNSADSFWOSNGWY
 Ehrmann-81 SYTSNAGSEAAKAWIAGRESGGSYSARNDYIGKYLSSASYLGGDYSANDERVADNYVKSRYGSMSNSADSFWOSNGWY
 SEQ_ID_NO24-81 SYTSNAGSEAAKAWIAGRESGGSYSARNDYIGKYLSSASYLGGDYSANDERVADNYVKSRYGSMSNSADSFWOSNGWY

Sequence comparisons between Ventura *APF2* and Ehrmann sequences and SEQ ID NO:2 (Jalview of ClustalW2 results)

NCC5534-80 SYTSNVSGSEAAK KAWIAGRESEGGYSARNGDYIG-YKOLASYLGGDYSAAANDERVADNYUKSRYGSMTGADKFNGQW
 DSM205534-81 SYTSNVSGSEAAK KAWIAGRESEGGYSARNGDYIG-YKOLASYLGGDYSAAANDERVADNYUKSRYGSMTGADKFNGQW
 WPH17594-81 SYTSNVSGSEAAK KAWIAGRESEGGYSARNGDYIG-YKOLASYLGGDYSAAANDERVADNYUKSRYGSMTGADKFNGQW
 Ehrmann-81 SYTSNVSGSEAAK KAWIAGRESEGGYSARNGDYIG-YKOLASYLGGDYSAAANDERVADNYUKSRYGSMTGADKFNGQW
 ATCC115064-81 SYTSNVSGSEAAK KAWIAGRESEGGYSARNGDYIG-YKOLASYLGGDYSAAANDERVADNYUKSRYGSMTGADKFNGQW
 ATCC3324-81 SYTSNVSGSEAAK KAWIAGRESEGGYSARNGDYIG-YKOLASYLGGDYSAAANDERVADNYUKSRYGSMTGADKFNGQW
 ATCC19924-81 SYTSNVSGSEAAK KAWIAGRESEGGYSARNGDYIG-YKOLASYLGGDYSAAANDERVADNYUKSRYGSMTGADKFNGQW
 ATCC332004-81 SYTSNTSGSEAAK KAWIAGRESEGGYSARNGDYIG-YKOLASYLGGDYSAAANDERVADNYUKSRYGSMTGADKFNGQW
 SEQ_ID_N024-81 SYTSNVSGSEAAK KAWIAGRESEGGYSARNGDYIG-YKOLASYLGGDYSAAANDERVADNYUKSRYGSMTGADKFNGQW